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NO. 3

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T H E M O D E R N S C H O O L M A N

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VOL. II

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NO. 3

"VITA IMPROPRIE DICTA"

An account of the successful and interesting experiments of Dr. Alexis Carrel regarding excised cells, which appeared as an Associated Press account in the Commercial Tribune of Cincinnati for November 21st, renews our interest in the condition of the "life" manifested in these cells. The account has to do with tissue taken from the heart of a chicken,--tissue which apparently has been alive now for twelve years. To quote:

"Live tissue taken from the heart of a chicken in 1913, by Dr. Alexis Carrel, is still growing under care of Rockefeller Institute experts. If it had not been pared down each day, it would now be a colossal monster overspreading the entire ~~state~~ city of New York, they said to-day.

"The growth of the tissue is so great that it doubles every 24 hours. Motion pictures showing this growth have been taken and are being studied by scientists. As long as the tissue is nurtured and irrigated it cannot die, institute officials said."

If anything is certain, it is that the life which appears in the case of excised cells is not life as we ordinarily know it. Consider: a live tissue is taken from the heart of a chicken. It is placed in a suitable plasm or medium and kept at a very definite temperature. Apparently it lives. As long as the cells of the tissue are fed and irrigated, death, it would seem, is impossible. Cell division takes place, and new cells form in the plasm. The growth is so rapid that movies have actually been taken of it. Everything, observe, takes place in this plasm, which is either procured from the blood of the animal itself or is specially prepared to yield the same nutritive elements as the blood. Everything is "under care".

We have known for years that parts of an organism, cut off from the main body, still exhibit to an extent the phenomena of life; yet the unique manner in which Dr. Carrel has performed his experiments, the results obtained, and the deductions made possible, bring the phenomena into the focus of public attention, and cause us to marvel both at the manifestation of "life" and at the technique that has made it so tangible. But, --is it, strictly speaking, life?

Life from a scientific point of view calls for nutrition, growth, and reproduction on the part of an organism: and all life as we know it has these three characteristics. Consequently, unless we are to throw away as ambiguous and useless a definition that heretofore we have always been able to apply very definitely to living beings and to them alone, it is only just to require that the alleged life in excised cells measure up to this standard. Now as a matter of fact we find on examination that these cells manifest the activities of growth, nutrition, and reproduction at the most only in an apparent and imperfect manner, and therefore that they do not, properly speaking, measure up to the standard.

A word in regard to the expression "organism". An organism (the definition is not an arbitrary one) is a natural body, made up of heterogeneous parts so coordinated, that each part performs its own proper functions but dependently on all other parts, and in so far as the good of the whole organism is furthered. The word "organ" should not be confused with "organism". The former is part of the latter.

Now take the first requisite, real nutrition. Nutrition is the process by which an organism which is continually breaking down, continually rebuilds itself by its own activity. In the first place, the tissue from the heart of a chicken is not an organism any more than are the individual cells of that tissue. It and they are parts, albeit excised parts, of the organism, that is, of the chicken itself. As units, the cells could not after being excised become whole organisms, because cell division, their characteristic activity of "growth" and "reproduction", does not produce units more perfect than those present to begin with, but at most produces only like units; and they were not whole organisms before being excised, because they all came into existence as determined parts of a determined organism, and from a single germinal cell. Further, there can no more be question of "Propria activitate" in the nourishment of these cut-off cells than there is question of it in the cells in the living chicken, since in the former the same or equivalent food is supplied in the plasma placed there by experts, as is supplied to live cells in the body of the chicken by the whole body operating as a unit. And this mere reception on the part of the cells within the organism of food prepared and distributed by the organism as a unit, does not of itself constitute nutrition. In the case of the cells still within the living chicken, the activity referred to in the words "by its own activity" is attributed to the whole chicken itself; in cells that are cut off, it is logically to be attributed to the experts who similarly care for the cells.

Secondly, there must be true growth, or, technically, full epigenesis: That is, the living organism must evolve from the imperfect state of a single germinal cell to that of a perfect living being, during the process of which evolution there is striking adaptation to most varied circumstances of temperature and environment. Excised cells have at most only direct or indirect cell division, which does not, in their case, produce cells that are individual organisms, for the

reason that this cell division produces only like cells, and that there were no individual organisms to begin with. Excised cells moreover are dependent upon most delicately adjusted conditions, without which their manifestation of life ceases.

There must be finally true reproduction or generation, that is, the production of a germinal cell, capable of the evolution mentioned above; or, if the organism in question be unicellular like an amoeba, it must produce a cell that is itself an organism capable of true nutrition, growth, and reproduction. Excised cells do not produce such a cell.

Aside from an aspect strictly scientific, however, what kind of life is this in which a tissue (we cannot call it a complete organism) is capable of development into a monster as large as the city of New York? Suppose that by being "nurtured and irrigated" it were to develop thus and become a huge, ungainly mass of-- What would it be? Still a tissue, a portion only of the heart of a chicken, and one that would require for its continuous manifestation of life the same plasmic medium, the same delicately maintained temperature (that, namely, at which it originally thrived within the heart of the chicken), the same irrigation processes, and so on, -- all of which would seem to call for nothing less than an army of experts in continual attendance upon it.

Again -- and this too is peculiar -- why, if excised cells are really alive, do we find the word "manifest" employed in describing it. Dr. Carrel himself and Dr. M. T. Burrows, who in 1910 described the experiments performed with excised cells in the "Annual Report of the Smithsonian Institution", refer to it in the peculiar phrase, "manifested life". Their statement is that "Fragments of tissues and organs of mammals and other animals can be kept outside of the organism in a condition of manifested life when they are placed under certain conditions in a proper culture medium."

Evidently then, in spite of the appearance of vital activity within excised cells, there can be no question of life as we ordinarily know it: This is the point we insist upon. The facts are interesting and not easily explained, the technique masterful, the experiments from a medical viewpoint invaluable. But the cells, "nurtured and irrigated" as they are from without, are not, properly speaking, alive. How, then designate their "life"? We use the expression "vita improprie dicta".

Gerald H. FitzGibbon, S.J.

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A TALK WITH DOCTOR BURROWS

Doctor Montrose T. Burrows was associated with Doctor Alexis Carrel at the Carnegie Foundation in the early experimentation with excised cells, which has come to be called Carrel's Experiment. Since that time (1910) he has continued his work in this field to even a greater extent than has Doctor Carrel. His writings on this subject are voluminous. At present he is Chief of Staff at Barnard Free Skin and Cancer Hospital, Washington Avenue, St. Louis. Here he has brought his great skill and knowledge in the preparation and preservation of excised cells to the study of cancer. With the assistance which this technique afforded him in

studying cancerous cells he believes that he has made greater progress in the crusade against this plague than has even been made before. This phase of his work with excised cancerous cells naturally is his greatest interest and forms the major part of his conversation. It is wonderfully interesting, but must have no place in this brief account.

Doctor Burrows received us most graciously. When he learned that we were from St. Louis University, he immediately expressed his admiration for "those scholars, Father Gruender and Father Schwitalia". Thus protected, so to speak, by the reputation of our two professors, we made bold to inquire about his experiments.

He showed us two cultures of cells. The first was taken from the heart of an embryo chicken, and the other a culture of cancerous cells of a rat. These cultures consist ~~xx~~ of a fragment of tissue placed in a drop of lymph, plasma, serum, or saline solution or other media, hanging in a sealed hollow slide.

Under the microscope, the chip from the chicken heart appeared to be about the size of a dime. Radiating out from it--some connected to it and some not--were finger-like projections or chains of cells, much like a single file of soldiers. Other cells had gone off by twos or threes, or singly, into the medium. The cells were "migrating" from the chip. This is the common phenomenon. The outline and structure of each individual cell in the medium could be plainly seen, while what remained of the chip was a dark mass.

"Do you see the cells floating about alone, or in twos and threes?" asked the Doctor.

"Yes", we answered. "What is the explanation?"

"They are leaving the chip. When the chip is cut away from the parent subject, they lose that something which holds them together and makes the collection of cells what it is. They will never come together again to form another heart or another chicken. They have lost that something which keeps the individual cells together and makes them into a chicken or a dog or a man or whatever other animal it may be from which I take the cells. They will leave the chip and live alone in the medium as long as I feed them, but they will never become a chicken heart again. They have lost their organization."

This was splendid news, and we began to wonder why we considered these "Moderni" such a great obstacle to our thesis. But we were soon to be given a jolt.

"How long will they live in that manner--isolated in the medium?", taking our cue from the Doctor's last statement, that the cells "live in the medium" as long as he feeds them.

"Why, they will live forever, if they are given the proper care and food. They partake of the immortality of life, just as our body does. It too will live forever if it is given a new supply of proteins. But even though this body of

ours dies, it transmits its immortality on to its children. The cells do likewise. Their life is immortal".

The "Moderni" had materialized! Here was an adversary to our Thesis that excised cells are not alive in the strict sense of the word.

"We continued in silence to examine the cultures. Then:

"This looks like division", one of us said, with his eye still pressed to the microscope.

"Surely", said the Doctor. "They divide. In fact they do so and move into the fluid of the medium so rapidly that in an hour's time a great change can be noticed in their arrangement."

"What kind of division is it that is going on?" This question was prompted by the remembrance of a statement in Psychology that karyokinesis is true epigenesis--true development, which, in turn, is one of the characteristics of living bodies.

"That", he said, "is true mitotic division".

"Karyokinesis?" rather quietly.

"Yes, karyokinesis. Let me show you". And he showed us some photos which he had taken of cells in division that had been fixed and stained and which displayed clearly the karyokinetic division.

In the course of the conversation we learned that the activity of the cells varied according to the character of the solution in which they were placed. If they were suspended in a non-food solution, the cells fed upon each other to the extent that, by the time the cells composing the chip had migrated into the medium, their number had been reduced one-third. This third had gone to feed the remainder. In a medium of the lowest food value, the cells migrated without the loss of any individual cells sacrificed for food. In another medium of greater food value, the cells divide and increase at a moderate rate. Still another medium of an increased food value greatly accelerates the division. While in a fourth medium of yet richer food value the cells rapidly deteriorate. Thus by regulating the quality of the food value of the medium in which the cells exist, their division can be wholly arrested, made to act with varying rapidity, or the cells be destroyed. Apparently these characteristic properties of living bodies can be controlled in the excised cells much as they are controlled in the entire body, by the food supply.

John F. Byrne, S. J.

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THE MIDDLE OF THE ROAD

We are told to look for Virtue in the middle of the road. Serenely she is walking there. On either side gape wide unfathomed chasms, but she is unafraid.

A sister figure is with her. Equally serene, she too holds to the middle of the road, no less undaunted by the twin precipices so near to her. Her name is Truth.

Following reverently after is yet another figure, serene as the two, and unafraid^{as} they of the abyss on either side. She too keeps the center of the road, and her name is Philosophy.

While thus playing with fancies, one day I came across a thought that somewhat corrected my pictures. I had imagined it was Philosophy who followed so faithfully after Virtue and truth. I came to see I was mistaken. Not Philosophy (for that is a broad term, as broad as "Religion"), but scholastic philosophy it was who was so calmly going along in the middle of the road. Philosophia Scholastica stat in medio.

Then, as if in approbation of my thought there came to me several books. In them I read, and found expression of the great fundamental problems whose solution Philosophy is seeking. One these problems the best minds of the ages have vexed themselves, and—surprising thing—their solutions are numbered by the scores, though the problems themselves scarcely number ten. One sage has set himself to deny that which another asserts, and both are bent on denying that to which the common opinion of mankind holds tightly. On the left hand and on the right they leap from the road into the depths below. Meanwhile, Scholastic Philosophy holds the mean between errors; and the "consensus humanus", "public opinion", stand with her.

The first great problem of which I read, a manifold one, was that of the ONE and the MANY. Is the universe One or Many? Is it all and only Matter, or all and only Spirit, or might it be a little of both?

Spencer, Huxley and a host of the "Materialistic School" shout out to us, "All that is, is matter! No Spirit! No essential difference between life and non-life!" Spencer, Huxley and Company leap from the middle of the road towards the left into the depths below.

Spinoza, Hegel and the "Idealists" together with the Hindu sages, are equally certain; "All that is, is Spirit! No such thing as Matter! No essential difference between life and 'non-life'! This fine company choose the right-hand ditch into which to plunge themselves.

Meanwhile, voicing the common opinion of mankind, the "realistic" philosophy of Aristotle and Aquinas and Leo XIII holds the midway between errors; "Existence of two substances in the universe! Matter and also Spirit! Essential difference between Matter and Spirit, between Life and Non-Life! In jocose mood, "What is matter? Never mind. What is mind? No matter."

I referred to the problem of the One and the Many as manifold. I did so to call attention to the fact that some of the main problems of philosophy are subsidiary to this problem or related to it. Thus, the question of essential or non-essential difference between "life" and "non-life"--- certainly a major problem of philosophy-- takes this subsidiary rank. For, obviously, if Monism, or "one-ism" of substance in the Universe, is admitted in any form, there is no essential difference between "life" and "non-life". In the idealistic supposition, all would be "life", just as in the materialistic, all would be non-life.

The problem of knowledge is likewise related to this great problem; the problem of the nature of thought must be referred to it; the question of free-will stands in abeyance to it.

Philosophers have jumped from the middle of the road because of the "One or many problems. They have not been less athletic, less saltatory, because of the problem of Knowledge. Kant and a valiant host, rushing to solve the vexing question, shout back to us, "All knowing is but a knowing of the mind! We cannot know the nature of the extra-mental! Must accept it according as it is stamped by the categories of the mind!" Kant, et al take the running leap into the ditch on the right.

Equally valiant, the host of James call back to us from the outposts of investigation, "All knowing is but a relative affair! That is useful to the age is true! That is en rapport with the 'Zeitgeist' (to mix their metaphors) is true!" James et al leap valorously to the left.

Disdaining any solutions so common, there is a third party, telling us, "Of a truth, all knowing is a matter of doubt! Can't ever be certain, you know!" This third party, if we are to continue our simile, leaps neither to right nor to left, but sinks down through the center of the road, like the wayfarers on the bridge in the vision of Marza.

And then, there is the totum genus humanum, the common man, and with him, Scholastic Philosophy, advocating a realism that maintains we can know the "Extra-mental", the bread and cheese set before us, and the heavens o'er us. Likewise, it is convinced that twice two was four in Nineveh times, just as it will be on Judgment Day.

The next problem is the one of the nature of our thought. Is this mental act a process of IDEAS or of mere PHANTASMS? In other words, is it spiritual or material? The man-in-the-street does not well comprehend this problem, but he is at least certain that he has his ideas about the "gov'ment" and about evolution and about honesty and about neighborliness and about love. Unconsciously, the man-in-the-street is as scholastic as ever philosopher was who defended "habemus ideas universales."

Free Will! "Nonsense!" The Master at Koenigsburg has not been able to demonstrate it in all the wide ranges of his Pure Reason! Spinoza has denied it! Locke and Hume and J. S. Mill, these are great men who are calling out "Nonsense" on free Will! The common man does not agree with them, but then the common man seldom agrees with any philosopher save the scholastic. The vulgar individual prefers the middle of the road, whereas those great Masters of the Realm of Thought

have "willed to plunge into the deep, deep ditches on either side. The man-of-the-street thinks the murderer in the first degree did his killing "with malice aforethought and deliberate intent to kill." The Masters believe (and teach) "there is no free will there is no responsibility." "No responsibility!" echoes Clarence Darrow. And Loeb and Leopold, "No responsibility!"

I have mentioned a few of the major problems of philosophy, enough, I believe, to show that the Masters are at variance in regard to them. Perhaps the middle of the road is too much of a public highway for the savants. The vulgus profanum are walking there. Perhaps, to paraphrase Coleridge, these same savants are, as the owl who, closing his eyes to the noon-day, and
 "the glorious sun in heaven,
 cries out, "Where is it?"

Be that as it may, the Masters are in a great hurry to plunge themselves into the ditches flanking the highway. Do but set up a question. "Have we Free Will"? ---a dozen reverend, earnest men are leaping to the left, to the right, down through the road, the sage, serious, highly-respected and respectable gentlemen are disappearing helter-skelter. "What about our minds? Ideas? or Phantasms?" A host of laboratory geniuses take the running leap. "And the Universe? One or More than One?" Greek, Hindu, German, French, English, American, from many lands, of many tongues, of many ages, the great men are falling out of sight.

And then, walking in the middle of the road, the three serene figures are seen; Virtue, who ever goes between twin depths; Truth, who leaves not the middle path; and Scholastic Philosophy, the seeker of Truth and Virtue. Truth and Virtue will not throw themselves over the abysses, neither will the "philosophia perennis" of Aristotle and Aquinas and Leo, the philosophy too-- if they but knew it!-- of those other figures farther down the road, the "vulgus profanum," the glorious composite of Matter and Spirit, Man!

Paul E. Dent S.J.

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"It must be admitted that his (Bacon's) contempt for Aristotle, as for the medieval schoolmen, and for the deductive method goes far beyond what is justifiable. A modern philosopher would probably find more of real value in the writings of St. Thomas than in those of Francis Bacon. Harvey (the discoverer of blood circulation, a contemporary of Bacon) remarked of him that he wrote philosophy 'like a Lord Chancellor'". ---John Drinkwater: Outlines of Literature, Volume II, page 364.

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"Edicimus libenti gratoque animo recipiendum esse quidquid sapienter dictum, quidquid utiliter fuerit a quopiam inventum atque excogitatum." ---
 Leo XIII: Aeterni Patris, Encyclical on Philosophical Studies, August 4, 1879.

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SEMINAR NOTES

Logic Study-Clubs .

Among the apprentice Philosophers, study-clubs have taken the place of the formal seminar. On account of numbers it was thought that such an organization of the entire class might present difficulties; or, to say the least, it was thought that it might not be the best means by which to unravel the future tangled skeins. A happy mean had to be struck between the restraint of parliamentary procedure and the unwhieldiness of free discussion in such a gathering where warm debates were expected and hoped for. Some two months ago six first year men began experimenting in an effort to perfect some sort of organization which in point of efficiency would be to a formal seminar what a committee is to the House of Representatives. Restraint and disorder, Newgate and Babel had to be avoided. After discussion, decision, and trial, and this repeated and repeated again, there resulted a deep sympathy for the framers of our American Constitution, and a working plan which not only bore the brunt of the work, but very satisfactorily took the place of a seminar.

The difficulties of red-tape and mob-rule were eschewed by working in small groups - studying together rather than conducting meetings. Credentials for admission were only a lively interest in the subject and a willingness to help the others over the stile. Formality of organization was reduced to a minimum. There is a chairman and a secretary. They, with the advice of the members act as a program committee whose duty it is to assign papers, and some days before the meeting to inform each member of the topic to be discussed. The member is expected to prepare a short discussion of this same point, or to bring his difficulties for solution. One ten-minute paper on some particularly recondite subject is read at each weekly half-hour meeting. The remaining time is given to the discussion, which has been so enthusiastic and instructive that practically every meeting has been prolonged for a full hour. At present two groups of six, entirely independent of one another, are working on this plan; and a third is in embryo.

The subjects so far discussed are: "Ideas and Apprehensions" by Mr. Mahoney, "Formal and Material Object" by Mr. Newell, "Signs" by Mr. Foley, "Inductive Processed" by Mr. Mallon, "Deductive Reasoning" by Mr. Morrison, "Analysis and Synthesis" by Mr. Doyle, "Aristotelian Enthymemes" by Mr. Smith, "Logical Truth" by Mr. Wirtenberger, "Truth" by Mr. Jorgensen, "Subjective and Objective Concept" by Mr. Cavanaugh, "Discussion of Joyce's Logic" by Mr. Pendergast.

To a logician every one of these subjects is an outstanding one. The value to the beginner of such well-prepared papers and their discussion can hardly be estimated. They have awakened a lively and active interest in philosophy, and have alleviated the pain of its proverbial "bloody entrance".

Wilfred Mallon, S.J.

Psychology Seminar.

If the interest and life in our seminar may be measured by the difficulty encountered in trying to stop the informal discussion that invariable continues after the formal adjournment of one of our meetings, then I think we have sufficient evidence of the sustained vitality of our organization. It is hoped that soon the matter treated in our seminar will be arranged in such a way as to merit more detailed accounts in this bulletin, At least that is our aim.

During the last few weeks we have heard some more fervent discussion on "Life and non-life", excised cells, the essential distinction between ideas and phantasms, and other points of current interests. The next regular meeting promises to be the most animated and practical one of the year. It is planned to discuss the whole treatise on "The origin of ideas" in the form of a symposium. The positive matter will be divided up among four members. Each defendant of the positive matter will have an appointed adversary who will look up the main objections to the defendant's tenets or will defend hererodox doctrine. For instance, the first defendant will refute innate ideas and defend the doctrine "Nil est in intellectu quod non fuerit primo in sensibus". His opponent will study such points as "Talents and heredity", and propose this as a real difficulty. The second defendant will uphold the doctrine of "Species intelligibiles impressae" against the attacks a pseudo Palmieri. In a similar manner the other parts will be treated. Thus we aim to cover the whole field of "The origin of ideas" in a popular and thorough way. More details as to the outcome of this venture will be given later.

With the help of the class, Mr. Dent is compiling collateral reading-lists for the various treatises in Psychology. This is expected to be of service to anyone who desires to study the matter from various points of view. The books mentioned are in the philosophers' library, and hence, readily accessible to all.

F. T. Keeven, S. J.

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ITEMS OF INTEREST

A recent letter from Jersey informs us that Father McWilliams, our Professor of Cosmology, left for Louvain in the latter part of November to continue the work in his specialty which he has been carrying on at Jersey. He is expected to return to St. Louis about the end of January.

Those who are acquainted with Father Gruender's color-wheel, which he invented as a test for color blindness, will be interested to hear that he has devised another instrument for detecting and measuring color weakness.

Last May we published a copy of the circular letter in which Dr. James H. Ryan of the Catholic University announced his project of organizing an American Catholic Philosophical Association. Preliminary arrangements have since been completed, and on December 12 a program and invitation to the first meeting was sent out to those who had signified their interest in his proposal. This meeting will be held at Caldwell Hall, The Catholic University, on January 5, 1926. A business meeting for the purpose of organizing and of electing officers is to take place at ten o'clock. The afternoon session will consist of a symposium, "What the New Scholasticism Has to Offer Modern Thought." Space forbids us to print the whole program. In the symposium, the field of biology will be treated by Fr. Schwitalla.

Mr. FitzGibbon has interested a number of the philosophers in the compilation of a brief conspectus of the "adversaries",--among whom, of course, are several good Catholics, like Father Palmieri. This conspectus is to be in the form of a card index, each card containing a brief biographical sketch and a summary of the main points of departure from our tenets.

C O M M U N I C A T I O N S

ARE EXCISED CELLS ALIVE?

(Note: The following passage from a letter recently received by the Editor from a Professor of Psychology in one of our colleges is interesting in connection with the current articles on life in excised cells. We quote with the writer's permission, withholding his name as requested.

The question was raised as to whether each cell in a living body has a vital principle of its own. This led the professor to translate for the class Father Gruender's thesis on the cell-state-theory. The phrase "vita improprie dicta" aroused considerable discussion, during which one of the students asked, "Why can't you say that the cells have each their own vital principle in potentia, which is released, as it were, when the cell is excised?" The writer continues:)

"Why indeed? I don't know. In that explanation the unity of the vital principle in the living organism would be saved, and yet the "vita" of the excised cells would be accounted for. I suppose the answer is that no efficient cause is assigned for the eduction of this new vital principle from the potentiality of the cell matter. But why do we have to have an efficient cause? This new vital principle is really not a new thing, but the remains, as it were, of the old. No vital principle is a complete substance, but only an essential modification of matter. Why do the cells have to lose this modification the moment they are excised from the living body? Why can't they still have it, only in a less degree? I'd like to have an answer to some of these questions, if you can get it."

(We hope that some of our readers will suggest answers to these questions. If necessary, we shall reserve space for some articles on this topic.---Editor.)

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"DEDUCTIVE OR A PRIORI"

To the Editor:-

St. Louis University.

My attention has been called to a misleading statement in my article on "Inductive Processes", which appeared in the November number of THE MODERN SCHOOLMAN. In the last sentence of the first paragraph, these words occur: "to mark its (induction's) differences from and relations to deductive or a priori reasoning."

As stated, "deductive or a priori reasoning", the expression is subject to misunderstanding. One might understand the terms to be exactly synonymous. This is not the case. The first term includes the second, but is broader than it. All a priori reasoning is deduction; but all deduction is not a priori. The words are not interchangeable. To exemplify: We arrive at the proof for the existence of God by deduction, but the process is certainly not a priori.

An analogous statement subject to a like misunderstanding would be to say that one was showing the difference between a New Yorker and a Missourian or St. Louisan. A foreigner might be led to understand this as meaning that St. Louisan and Missourian were convertible terms.

I trust this word of explanation will clear up any confusion caused by the previous equivocal statement of a matter which is at best sufficiently abstruse

Wilfrid Mallon, S. J.

E D I T O R I A L

THE NEW BOARD OF EDITORS

In order to establish THE MODERN SCHOOLMAN on a more secure basis and to provide for continuity of policy in the future, a new board of editors, whose names appear on the first page of this issue, has been organized to assist the managing editor.

These men, four from first year and four from second year, have been quietly cooperating with the editor for the past few months and now desire to take a more active part in the affairs of this bulletin. Besides acting as an advisory council in matters of editorial policy they will hereafter take charge of the various departments, and all activities connected with THE MODERN SCHOOLMAN: editorial writing, negotiations with publishers and book reviewers, incidental correspondence with readers, securing articles from local contributors, and the routine work of typing and mailing each issue. (Here let us insert a word of sincere thanks to the theologians who do the mimeographing.)

The policy of the editors is not to write articles themselves but to suggest articles for others to write, and to organize material for such articles. Thus THE MODERN SCHOOLMAN will not express the thoughts of a small and select group, but will continue to be a vehicle of thought representative of the entire School of Philosophy.

READING LISTS

The reading list in Psychology now being prepared by Mr. Dent is the first step in our project of a complete reading list for each branch of Philosophy. When completed, this list will contain references to all passages in the philosophical books of our library wherein is discussed any point touched upon by the various theses of each branch.

The advantages of such a list are so obvious that the editors anticipate little difficulty in securing the cooperation of several men in each year to assist them in their work.

THE PHILOSOPHICAL BULLETIN BOARD

Under the editorship of Mr. Dowling, the bulletin board which Mr. O'Leary conducted last year is continuing to function as a clearing house for philosophical items, clippings, letters, and quotations, gathered from near and far. Its aim is to emphasize the connections of philosophy with modern life and thought, and thus, as someone pithily declared, to "bring life into philosophy." That the men are interested is shown by the frequent controversies that have resulted from individual attempts to interpret various facts in the light of philosophical principles.

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The editor of the board wishes to thank those of our extra-mural readers who have sent him clippings and other material for use on this bulletin board. These men are conferring a great benefit on the Philosophers. Further contributions are very much desired.

BOOK REVIEWS

The Dogma of Evolution. By Louis Trenchard More, Professor of Physics in the University of Cincinnati. Princeton University Press. Princeton, 1925.

It has become a precarious thing in our times for a man to trespass ever so slightly upon the purview of another's specialty. The sciences particularly, while becoming ever more closely interrelated, grow ever more jealous of lay encroachment upon their individual provinces. Experimental psychologists may suffer biologists to help them, and biologists physical chemists; geophysicists may aid astro-physicists, and astro-physicists electro-physicists, but in larger circles nothing but admiration and approval is looked for or ambitioned. For the philosopher to raise his voice against too ready an assumption, too large an hypothesis, against what is really unlawful poaching on his preserves is an effrontery, an offense to "science". It is a case of 'let the ignorant keep silent when wise men are talking', and it induces, of course, a professional intolerance of the comparison and adjustment so essential to the development of a science, to its inter-action with others, and to the harmony which binds them together. This was the mental attitude which Professor Louis T. More was to meet with when he accepted the Louis Clark Vanuxem Lectureship at Princeton University for 1925; it was the mental attitude which he must change in his introductory lecture, or go forward under serious handicap. For Louis T. More was an established professor of physics about to discuss a biological and philosophical question,- and that the leading intellectual issue of our day.

Comprising the Louis Clark Vanuxem lectures, the book comes recommended. Non-popular as it is, yet finding itself within eight months in its second printing, it comes widely endorsed. Scholarly and therefore comprehensive, critical and therefore objective, "The Dogma of Evolution" is capable of forming a new mind among many, - among many heretofore blind sheep following unworthy wethers into poisonous pasturage.

In purpose, the book aims at tracing the effects of the evolutionary hypothesis as applied to philosophy, sociology, and religion, rather than at estimating its value as a purely scientific postulate. In content, however, it is a critique of the theory of evolution: primarily, of evolution in society, of evolution in religion; secondarily, though not summarily, of biological evolution. The former demanded a large familiarity with the Greek and mediaeval attitudes in their sources rightly to criticise what in our century they are represented to be, rightly to estimate what of thought and conduct might be said to-day to have evolved from them. The latter called for a knowledge of Lamarckian, Darwinian, and post-Darwinian evolution in the scientific order. The whole rested on large scholarship quantitatively and on fine scholarship qualitatively. The result in exhaustiveness and objectivity approximates that achieved by a symposium, even while it improves upon the symposium in its articulation. To plead at once as historian and philosopher, as biologist and physicist is to awaken suspicions; in our day proficiency does not come in such large packages. To argue dualism (almost sacramentalism) on such extensive grounds and so explicitly is to court contempt; in our day only one's success could save him.

Dean More, possessing the proficiency, allays suspicions; so achieving his success, he forestalls contempt.

It is an immense satisfaction to observe an eminent physicist, an acknowledged expert in that most exacting and difficult of sciences, reduce evolution to monism, interpret materialism in terms of matter and energy, reveal thus scientifically its inadequacies, then, grounded upon science, rise above and point the way, metaphysically, toward dualism. It is more than satisfying to observe the revaluation of Lamarck's claims and Darwin's, with Lamarck's consequent restoration to honour. It is positively exhilarating, at this distance, to hear Mivart justified in his almost forgotten attack on Darwin, to hear Huxley exposed in his counter-attack on Mivart. And it is surely not depressing to see the extremists from Spencer and Haeckel to Conklin and Osborn, if not man-handled, at least handled by a man.

Yet in it all there is one particularly sad token of human fallibility. Professor More sees religion and science as irreconcilables, their differences essential, their largest aims opposed. He has not yet discovered that not all knowledge is scientific, that the greater knowledge is non-scientific, that not by observation and experiment alone does man come to know what he knows, that the mystery of life - the general subject of his brilliant lectures - differs not in its mystery from the mysteries of religion, that, in fact, the mysterious element in the one is the spiritual subject for which the others are the recognized objects - ultimate and intermediate. Life is not mechanistic, he concludes; man is vitalized within by an immaterial principle. He thus reaches the soul, yet fails to pass beyond into the higher domain of that soul's life.

This would seem the one great lesson that the eminent lecturer has yet to learn. Mayhap Plato will teach him or Augustine or a greater than these; the his "great restlessness" will cease and his great mind will glory in the joy of a larger knowing.

L.W.F.

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SPIRITISM: Facts and Frauds. By Simon J. Blackmore, S.J.
Benziger Brothers. 1925.

Being but a casual reader of books of spiritism, the writer is not well fitted to pronounce on the intrinsic worth of Father Blackmore's work. It is, however, manifestly an exhaustive study of the subject, follows the usual lines of refutation, and is a fine example of Father Blackmore's commanding, scholarly and lofty style. The author's views with regard to the genuineness of spiritistic phenomena, their cause, and the position of the Catholic Church on the question, are similar to those of Father Thurston, S.J. Briefly, much of the phenomena is spurious, much more may be spurious, but certainly the remainder is genuine, having as its causes spirits of evil. He examines all the evidence and quotes widely from all prominent writers and investigators of spiritism. It is a very fine summing-up of the case. Evidently, the work of Father Blackmore is adapted rather to the uses of the more advanced student rather than to the curiosity of the beginner; the terminology is highly technical and the manner of exposition not always simple. It contains, however, very much that would interest and enlighten the popular reader.

L.F.D.

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FATHER GRUENDER ON COLOR BLINDNESS

At a recent meeting of the Wabash Railway Surgical Association, held at the Hotel Statler in St. Louis, the following number appeared on the program:

"Recent Advances in the Methods of Detecting Color Blindness and a Discussion of the Color Experiences of Color Blind People", by Hubert Gruender, S. J., Ph. D., St. Louis, Mo."

Father Gruender, who is well known among psychologists for his work on color sensations, treated his subject in an interesting manner, from a strictly empirical standpoint.

He began the lecture with an explanation of normal and abnormal vision, pointing out the differences between the two and giving illustrations by means of the color-wheel and its equations. In this way he indicated the great discrepancies between people of normal vision and those whose vision is abnormal. It has been ascertained, he said, that five per cent of people can, within very narrow limits, make equations which are acknowledged by all. But the same five per cent make equations which are different from the equations of the remaining ninety five per cent; and they even disagree among themselves. Hence this five per cent are called abnormal.

Then the difference between the tone, saturation, and brightness of color-sensations was shown. Color-tone is that characteristic of a color which we designate by such terms as red, violet, blue, orange and so forth. In proportion as the tone of any chromatic color is clear, so that it cannot be mistaken for either white or black or gray, we say that the color is "saturated". Brightness of a chromatic color, purely psychologically considered, is nothing else than its relative similarity with white and black. These qualities are somewhat analogous to tone, pitch, and quality or "clang-tint" of a musical sound.

The different types of color blindness were next explained: yellow-blue blindness, total color blindness, and red-green blindness. The rarest type is the yellow-blue blind person; only one perfect case of this type has been reported. These people cannot distinguish between yellow and blue sensations. Another rare type is the person who can distinguish no colors at all. Such a person sees the spectrum as a mere shadow ranging from dark to light gray. Father Gruender stated that fifty cases of this latter defect have been reported, but that the cases differ among themselves.

The lecturer then turned to the most common form of color blindness, the red-green type. This is the form in which the railway physicians are especially interested, because of the red and green signals which must be discriminated by the engineer. Needless to say, persons of this type cannot distinguish between

red and green sensations. About four per cent of all men are afflicted with this defect. Women, with very few exceptions, are not color blind, but may inherit color blindness and transmit it to their children.

We find two divisions of this form of blindness, called Daltonism and non-Daltonism respectively. The Daltonians see the spectrum, but it is shortened at the red end. The non-Daltonians see the spectrum with its normal length, but interpret it differently than do those of normal vision.

This terminology is an ~~extensive~~ tribute to the extensive work of John Dalton, a famous English chemist and physicist, who was the first to study this defect introspectively. Color blindness in general has at times been called Daltonism. Dalton himself was of the red-green type and of the class now called Daltonian.

The thorough treatment of red-green blindness was illustrated by experiments on subjects of both divisions of this type. There were six subjects in all: three Daltonians and three non-Daltonians. The experiments on these subjects were conducted by means of Father Gruender's lately perfected color machine or color mixer. With this new device the two divisions of red-green blindness can be easily differentiated in a short time. Moreover, color blindness of any type, and even normal vision, can be tested by this color wheel "sine formidine erroris".

The lecturer then pointed out the distinction that must be made between color ignorance, color weakness, and color blindness. Color ignorance is the failure to name colors because of lack of knowledge or experience with different colors; color weakness consists in a difficulty of discriminating between unsaturated colors. Color ignorance can be cured by practice in discriminating colors, but color weakness and color blindness, at least congenital color blindness, are incurable.

In conclusion a few words were said about the prominent color theories of Helmholtz and Hering. Helmholtz' theory was shown to explain certain anomalies of color vision, but, in addition to other weaknesses, it is incorrect in stating that the sensation of black (which is manifestly a positive sensation) is caused by the absence of all stimuli. This is equivalent to saying that a positive sensation of black has no cause; which is absurd. Hering's theory explains the various facts of color sensations more satisfactorily than Helmholtz', but there are difficulties in its application to some color phenomena which have not yet been satisfactorily explained.

Father Gruender's opinion is that a perfect theory of color sensations, which would embrace all the facts of color blindness, would be a modification of Hering's theory. Otherwise the difficulties met with at present in the application of this theory must be accounted for by some supplementary hypothesis.

George B. Wahl, S. J.

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